NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD ARLINGTON,
VIRGINIA 22230

OFFICE OF THE
DIRECTOR

November 3, 2006

MEMORANDUM

To: Dr. Christine C. Boesz
Inspector General, NSF

From: Dr. Arden L. Bement, Jr.
Director, NSF

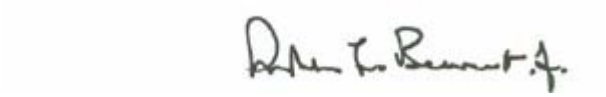
Subject: Response to the Inspector General's Memorandum
Management Challenges for NSF in 2007

Thank you for your memorandum of October 16, 2006 regarding potential management challenges the National Science Foundation (NSF) faces during the remainder of Fiscal Year (FY) 2007. In addition, thank you for your· acknowledgement of the significant progress NSF has made over this last fiscal year in meeting the FY 2006 management challenges, as highlighted below (see attachment).

A common theme across the last decade of management challenges has been the need for developing and investing in business models, policies and practices to further safeguard public funds while also furthering accomplishment of the NSF mission. This investment better assures a sound financial and administrative foundation for supporting basic research and education in science, engineering and mathematics, and guaranteeing a scientific workforce now and in the future.

Basic to responsible stewardship are internal controls essential to ensuring compliance with laws and regulations, reliable financial reporting, and the efficiency and effectiveness of NSF operations. Over the last year, NSF, like other Federal agencies, has invested in meeting the requirements of *Office of Management and Budget Circular A-123: Management's Responsibility for Internal Control,* the implementing guidance for the *Federal Managers' Financial Integrity Act of 1982.* NSF related activities and results are discussed in this *Performance and Accountability Report* in the Management's Discussion and Analysis, "Management Assurances" discussion.

NSF management accomplishments over this last year continue to contribute to NSF remaining well prepared to meet all challenges associated with carrying out its critical mission at the level of excellence NSF has maintained for over five decades.



Arden L. Bement,Jr.
Director

Attachment

cc: Chair, National Science Board

Attachment

NSF Management Challenges for 2006

NATIONAL SCIENCE FOUNDATION
Progress during Fiscal Year 2006
On the 2006 Management Challenges

Management Challenges are a means for an Office of the Inspector General (OIG) to articulate for its agency, the Executive Office, Congress and, most importantly, the taxpayers at large, the major strategic challenges facing federal executives as they implement their agencies' missions. These Challenges tend to be long range and strategic in nature, often requiring a continuous investment to mitigate their risks.

Each year, the National Science Foundation (NSF) Director receives the OIG's list of management challenges for the next fiscal year. In addition to receiving the challenges, the NSF Director provides a summary of NSF management's actions taken *over the last fiscal year* to address that year's challenges.

FY 2006 Management Challenges
Issued by the Inspector General
In the FY 2005 PAR

Award Administration
- *Post-award administration*
- *Large infrastructure projects*
- *Cost-sharing*
- *Promoting integrity*

Human Capital
- *Workforce planning*
- *NSF's non-permanent workforce*
- *Administrative infrastructure*

Budget, Cost, & Performance Integration
- *GPRA reporting*
- *Cost information*
- *Project Reporting*

Information Technology
- *Information security*

Procurement
- *Contract monitoring*

United States Antarctic Program
- *Long term planning*
- *Accounting for environmental liabilities*

Merit Review
- *Broadening participation*
- *Unfunded proposals*

Summary of NSF Actions on 2006 Management Challenges

Award Administration

Post-award Administration

- The Foundation continues to build out its cradle to grave oversight activities as part of its award portfolio management activities.
- NSF management expanded post-award oversight this Fiscal Year to include desk reviews for high risk awards that do not merit an on-site review during the current year.
- NSF is in the process of building out its Project Report module to improve capture of information able to be used in multiple ways. This will include status reports for the Principal Investigators / Awardees and NSF Program Officers.

Large Infrastructure Projects

- The Large Facility Project Office (LFP) staff has increased every year since 2004; there are now a total of four FTEs on board, including the Deputy Director, consistent with the size of this type of office for other Federal Departments/Agencies with large facilities, including, for example, the Department of Energy.
- LFP is working to provide support to facilities projects by writing and editing publications, and will soon provide support for the LFP reviews and travel functions.
- The facilities tracking and reporting system for obligations became operational for current MREFC projects by the end December 2005. Currently, LFP is working with Directorate staff to complete the loading of all facilities into the tracking system.
- An online training system has been developed and is in the process of coming online as part of the NSF Academy's Learning Management System (LMS); this training is intended for Program Officers, Budget Officers, and other NSF staff who have responsibilities for financial tracking of facilities.
- *Project Science Workshop* is a training program designed specifically for large research projects. The workshop provides discussion and lessons learned from both project and agency personnel.

Cost-sharing

In October 2004, the National Science Board eliminated program-specific cost sharing. As with all such changes, a prudent approach to implementation was mandated.

- All *previously issued* program solicitations specifying a cost sharing requirement continue to remain in effect until the solicitation is modified to remove this requirement.
- Through its internal clearance processes, NSF also has worked diligently with all program offices to remove cost sharing requirements in remaining solicitations and to ensure none are added to new solicitations.
- BFA's formal and informal internal and external outreach programs include discussions of this policy change and offer the opportunity for clarification.
- Existing cost sharing commitments are now included as factors in the overall NSF post-award oversight risk assessment model.
- Cost sharing is included as an important element in NSF's post award monitoring visits and any needed follow-up plans.
- NSF has made a number of important enhancements to NSF corporate electronic systems to facilitate the submission of requisite cost sharing reports.

Promoting Integrity

NSF management continues to work with the science and engineering communities to heighten awareness of the various issues that affect the integrity of our country's science enterprise.

- Two specific examples of activities on this subject include:
  - The requirement of ethics training for all Science and Technology Centers and Engineering Research Centers.
  - Continuing discussions regarding ethics at Federal Demonstration Partnership meetings.
- NSF's emphasis on this topic has translated into numerous web-based courses including general information on ethics in science.
- In addition, the NSF merit review process and Committee of Visitors, who are convened to review all NSF programs on a regular cycle, provide opportunities for feedback and critical reflection on issues of integrity.

Human Capital

Workforce Planning

Progress continues to be made in the development and implementation of an effective workforce planning process, as evidenced by the following examples:

- A committee of senior management from each Directorate and Office designed and implemented an operating workforce planning process in FY 2006.
- A 3-year strategic workforce plan was documented in FY 2006. The draft plan will be updated next year to align with NSF's Strategic Plan, and reviewed and updated annually.
- Each Directorate/Office created staffing plans for FY 2006 and FY 2007 based upon the methodology developed in the workforce planning process. These plans aided NSF's staffing efforts in FY 2006 and will be used as a baseline for FY 2007 efforts.
- The Directorate for Computer and Information Science and Engineering (CISE) piloted a workload demand analysis process which will be made available for use throughout the Foundation in FY 2007. This process will aid in anticipating future workload and help determine the appropriate mix of staff within a Directorate/Office.

NSF's Non-permanent Workforce

During 2003, the National Academy of Public Administration studied, among other things, NSF's use of "non-permanent" employees. That report noted that NSF uses its "rotating" workforce in an appropriate manner." It also noted that the NSF understands the challenges of managing such a mixed workforce, part permanent--part temporary, and has managed this situation very well so far, and recommended no changes to the management of this situation.

NSF has always appreciated the ability and authority to recruit and hire the most capable scientists and engineers to oversee and manage its frontier science and engineering activities. NSF also understands the challenges that come with this authority, and continuously works to improve the orientation, the training, and the appreciation of associated responsibilities that come with federal employment and excellence in program management. One key to NSF's success is a continual and transparent exchange between the science community and the agency. NSF's ability to utilize rotators is essential to carrying out the agency mission.

Administrative Infrastructure

To address the issue of adequate Human Resources Management administrative systems to hire new staff, the following actions were undertaken in FY 2006:

- Significantly expanded contract support to perform operational and processing work in order to focus permanent resources on strategic change and strategic partnerships.
- Created Human Resource service teams with specific customer account representatives to meet frequently with management officials in order to accurately define and meet recruitment needs.
- Established new "service agreement" approach to fill positions whereby the hiring office and HRM agree up front on recruiting steps and expected timeline to complete hiring action.
- Established and announced a number of open continuous positions to assure an ongoing supply of candidates for commonly filled positions.
- Implemented processes to improve the quality of questions used in Quick Hire announcements in order to make clearer distinctions between candidates.

Budget, Cost, and Performance Integration

GPRA Reporting

NSF plans to continue gathering input from internal and external experts on performance as the agency transitions to a new strategic plan for FY 2006 – 2011, building on its prior reputation as a "model for the federal community."

Cost Information

For the last five years, NSF has worked closely with the Office of Management and Budget (OMB) to adopt meaningful and useful efficiency measures in conjunction with the PART exercise and in developing a Budget, Cost, and Performance Integration Plan to meet requirements associated with the President's Management Agenda (PMA). For example:

- NSF has received a successful "Green" rating for its Budget and Performance Integration Initiative since 2005.
- NSF is the only agency (with more than one program evaluated) to receive "Effective" ratings in every PART program.

NSF has found that information on NSF's administrative costs is most valuable when gathered at aggregated levels.

- This is driven by the NSF investment of about 94 percent of its funding in its programs, and is presented in the NSF budget and tracked via the Statement of Net Cost which has been concurred with by OMB.
- NSF continues to balance its development of databanks against the actual use of such data and against the investments needed to deliver such information.
- To date, NSF has been successful in maintaining a reasonable and relevant balance at the aggregated level of detail that effectively meets senior management and OMB needs.

Project Reporting

During the last year, NSF has strengthened its supporting systems to better ensure each awardee and Principal Investigator complies with the requirement to file annual progress reports and final project reports. The NSF also has demonstrated leadership on this issue by leading an effort through the National Science and Technology Council by establishing a federal-wide template for project reporting.

NSF is moving toward an integrated, comprehensive solution to address remaining issues with the progress reporting system. Accomplishments include:

- Updating and clarifying NSF policy statements regarding progress reporting.
- The development of a new web-base project reporting notification and tracking system.

Information Technology

Information Security

Each year, NSF's security position is evaluated continuously through security reviews, self-assessments, audits, service recovery, vulnerability testing, and certification. NSF has taken the following actions to enhance security:

- Increased integration of the United States Antarctic Program into the NSF Security Program.

- Improved business continuity planning.
- Invested in and improved IT vulnerability management and automated security patch management.
- Improved IT security scanning processes.
- Continued refinement and integration of security into project life cycle.
- Updated security policies / procedures to reflect new security requirements.
- By mid-September, over 93 per cent of NSF employees/contractors had completed required IT Security Training; completion of this training requirement is necessary to maintain access to various NSF secured applications.

Procurement

During this Fiscal Year, NSF enhanced its contract support by initiating vendor reviews of its three largest contracts.

The United States Antarctic Program

Long-Range Planning and Environmental Reporting

During FY 2006, NSF:

- Created a new Section within the Office of Polar Programs (OPP) to address environmental, health and safety issues at the policy and oversight level for both Antarctic and Arctic research.
- Tasked an external group of experts to advise on the logistics and infrastructure needed to maintain the present effort and to consider modifications that would enable research in new geographical regions or on new subjects.
- Requested, in the FY 2007 budget to Congress, funding to begin implementing the resulting recommendations.

NSF Merit Review

Broadening Participation

Broadening participation in the science and engineering enterprise continues to be a major issue as the Federal government seeks to improve and expand its science and engineering workforce. Because NSF values the perspectives of various people in determining how best to invest in a balanced science and engineering research and education portfolio, the Foundation continues to seek the advice and guidance of a diversity of individuals on its Advisory Committees and Committee of Visitors as well as review panels. NSF cannot, however, require ethnicity, gender, or disability information from reviewers. The Foundation does ask reviewers to voluntarily self identify to help NSF improve data collection regarding reviewer demographics.

Unfunded Proposals

NSF seeks always the proper balance between proposals funded, and award size and duration, given available resources. NSF is unable to fund many excellent science, engineering and education proposals due to funding constraints. This is a challenge for NSF, and the Nation.